signs, duration of the growth, its location, etc. There is no doubt, however, that this attempt is a step in the right direction, and its continued study is judicious.

Speaking generally, the trend is away from the huge, high mortality, radical operation for advanced or moderately advanced cancer, since the ultimate outcome in the individual case is bad, and the effect on the public mind such as to discourage operative procedures upon patients in whom operation might prove curative.

Thus in cancer of the cervix, while I remain skeptical as to the permanent cure of even the moderately advanced case by any method of treatment, I am convinced that palliative methods prolong life and relieve suffering, and of these methods radiology is by all means the most promising. It is conservative to say that the high mortality extensive operation carries with it no better "clinical cure" outcome, while every operative death or early recurrence makes many potential enemies for all surgery in cancer.

"Early cancer extensive operation, late cancer little or no surgery," is the best surgical motto, and to this radiological treatment adds an element of hope not to be obtained in any other manner.

Doctor Duncan (closing)—The purpose of presenting this paper was to urge more careful study and broader consideration in the treatment of malignant disease, particularly referring to certain scientific work that unquestionably demonstrates that radiation therapy is a very valuable adjunct. It is unfortunate that many men who consider themselves competent to discuss and treat malignant disease surgically and otherwise have little knowledge of the pathological aspects of malignancy, a very limited clinical experience, an incomplete knowledge of the literature and—as would naturally follow—decidedly prejudiced opinions.

Replying to Lynch's criticism of my statistical reports, I would suggest that he review Janeway's paper, which was the most comprehensive statistical report on uterine cancer covering approximately 6000 cases reported by various surgeons throughout the world. And I further repeat, that based upon this report of a large number of cases operated by numerous surgeons, that the ultimiate clinical cures resulting from surgery alone in early cervical carcinoma were less than 20 per cent. It is quite true that there have been reported small series of carefully selected cases operated that yielded a much higher percentage of cures; however, this would include such a small percentage of the actual cases of uterine cancer and of those actually operated on as to be of little real statistical value.

I agree with Lynch when he says that "He who would treat cancer properly must be prepared to use surgery, radium, and high voltage x-ray," but would add, with emphasis, that he must also have proper facilities and training, as well as a thorough understanding of malignancy to use them in their proper relation. Referring also to a more detailed report of our investigation, I would refer the doctor to the article entitled, "The Grading of Epitheliomata and Their Radiation Sensibility," published in the New York Medical Journal, page 681, under date of December 5, 1923.

An opportunity to observe thousands of cases of malignancy treated by various methods during the past ten years has convinced me that we all have much to learn regarding this disease. However, there is no question but that a thorough study of the individual case and a less prejudiced and broader use of various methods or combination of methods of therapy of proven value would yield more favorable results in the treatment of malignancy and as a consequence increase the confidence of the public and the profession in our ability to cope with malignant diseases.

THE SECOND GREAT TYPE OF CHRONIC ARTHRITIS IN ITS RELATION TO INDUSTRIAL ACCIDENT CASES *

By LEONARD W. ELY, M. D., San Francisco

The relationship of trauma to the second great type of chronic arthritis is a question of frequent recurrence in industrial accident cases, and seems as far from settlement as it was years ago. Opinions differ radically, and cases are argued again and again, coming up periodically for adjudication. Sooner or later the problem must be solved, and as a step to the solution I am bringing it up for discussion at this meeting. Let me state the problem as it usually presents itself. A man at work falls; or he twists, wrenches or strains his spine or one of the larger joints of an extremity. Immediately, or after a short interval of time, he complains of pain. If the injured joint is of an extremity the pain is felt in the affected joint; if the spine is injured, the pain is felt in the back or running around the trunk, or more frequently down the lower extremities. Less often the pain runs down the arms. X-ray films are taken, and show the spurring and lipping characteristic of the form of arthritis known by so many different names—hypertrophic arthritis, degenerative arthritis, osteoarthritis, arthritis deformans, etc., etc. What relation has the injury to the arthritis, or, more exactly expressed, what relation has the injury to the bone and cartilage changes plainly shown by the X-ray film?

In the past the opinion has been strongly held that the bone changes were the direct result of the trauma, but of recent years this view has been challenged on many grounds, viz.:

1. In almost every disease of bones and joints, trauma has been advanced as the cause. As our knowledge of the disease has increased, the impossibility of trauma causing it has been demonstrated. This is true of tuberculosis as well as of other infectious processes.

2. Bone can be injured in one way only, and that is by fracture. It cannot be strained, sprained, or suffer contusion. Trauma either fractures a bone or leaves it uninjured. In the absence of a fracture, bone can be attacked only by a disease of its contained marrow.

3. The gross bony changes existing in these cases must take a long time for their formation. It is impossible that they would appear on an X-ray film taken a day or two after an injury if they had not been there already. They must have been present before the injury. This view is substantiated by the presence of the same changes in other uninjured joints, radiographed at the same time. In the spine especially, when the pain is felt in the lumbar region and running down the legs, the X-rays may show more or less extensive involvement, perhaps of the entire spinal column.

4. This disease is seen almost invariably in persons of middle and later life. It is unknown in children. It occurs almost exclusively in persons

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whose alveolar processes have abscesses at the roots of their dead teeth. Young people injure their joints as much as older people, but, immune from these root abscesses, they are immune also to the disease under discussion. On the other hand, the disease occasionally is seen in persons with sound teeth.

5. Intestinal parasites have been found in the stools of a large proportion of the patients, and are suspected as the cause of the bone lesions. Their portal of entry is assumed to be in the great majority of cases the suppurative osteomyelitis at the roots of the teeth.

In a case like this, when opinion is so divided, the solution is often found by laboratory study. I might instance pulmonary tuberculosis and appendicitis. Clinical study was unable to find the cause of either disease.

The gross changes of this type of arthritis have been known for a long time. They have been recognized in Egyptian mummies, it is said, and since the introduction of the Roentgen rays, their frequency has been appreciated. On the other hand, the histological changes have received rather scant notice, though a few writers have given excellent descriptions of them, notably the late Dr. Nichols of Boston. They have always been rather mysterious. Their sequence was hard to figure out. Given the original tubercle in bone marrow, what followed then in the bone, cartilage and joint was quite comprehensible, but in the second type of arthritis we noted the remarkable changes in the bone and joint tissues, and could not detect what was behind them. No reliable evidence of any bacterial infection ever has been adduced.

Three years ago I called attention to the areas of aseptic necrosis in the marrow in the immediate vicinity of the joints in specimens of this type of arthritis, and ascribed to them the primary role in the pathology of this disease. Since then I have accumulated more material, and have confirmed the observation repeatedly. They constitute the fundamental change. What follows in the bone and cartilage is the result, and its sequence upon the primary necrosis in the marrow is comparatively easy to understand. The pathological changes in the tissues in and about the joint may be briefly enumerated, more or less in the order of their occurrence:

1. Bone production immediately under the articular cartilage, and especially at its circumference. This bone formation probably extends into the ligaments for a short distance, giving the appearance of the spikes and spurs seen in the X-ray films, but not extending from bone to bone to produce a bony ankylosis, except possibly in the spine. It forms a layer of greater or less thickness under the articular cartilage, causing it to degenerate. More or less of the cartilage is also transformed into bone. Bone formation also goes forward within the bone, but not to a marked degree. The necrosis in the marrow causes a preponderating bone absorption, and this bone absorption can usually be detected in the X-ray film, if it is looked for. All these changes take time to produce; hence, if they are present a few days after the occurrence of an injury, we know that the injury did not cause them, but that they were there before.

2. Part of the articular cartilage may be transformed into bone, as has already been said. As the result of the damage to its nutrition the rest of the cartilage becomes fibrillated, degenerates, and then, in whole or in part, wears away, leaving the subjacent bone bare. This thickened subjacent bone becomes polished like ivory (eburnated), and becomes grooved in the line of joint motion.

3. The synovial membrane becomes thickened, fatty, fibrous, and villous. In other words, as the result of the bone and cartilage changes, which have distorted the joint, and probably exclusively as the result of the trauma occasioned by the ordinary use of the joint, viewed as a damaged machine, a chronic synovitis or arthritis is added.

The changes enumerated above may occasion considerable pain, but more often do not. On the other hand, a badly affected joint may be comparatively painless for a long time, and then, without known cause may become very painful. The pain may become so severe that a resection of the joint offers the only relief. Sometimes the disease is painless, and then the characteristic changes appear as accidental findings in the X-ray films.

Let us now state the problem as it exists in industrial work: A man falls, or wrenches one of his larger joints, particularly one of the joints of his spine. He complains of pain and disability. The radiogram shows the characteristic changes of this form of arthritis. After a greater or less time the man complains that the pain and disability have continued, and puts in a claim for permanent disability. Just what relation does the injury bear to the case? I have maintained for some time that all results of the injury were only temporary, and I have reached this conclusion along two lines of reasoning:

1. We have been paying especial attention to this disease at the Stanford Medical School for a number of years, and I do not remember to have seen a case unconnected with accident work in which a simple trauma resulted in permanent disability. The disease is very frequent. We can usually count on about 100 cases a year out of about 1000 patients. Many of our patients give no history of trauma. Some date their symptoms from a trauma, but we expect the symptoms referable to the trauma to subside in a few weeks. Thereafter we look for the disease to take its natural course. If intestinal parasites be eradicated in either case, and if all dead teeth be removed, all symptoms may subside in the milder cases, but we always remember that the pathological changes are permanent, and look on the joint as we would upon any other damaged machine. If it be required to perform the work of a normal joint, or if it undergo a slight strain or sprain that in a normal joint would pass unnoticed, pain, stiffness, and limitation of motion may recur. No operation can restore the normal contour of the articular surfaces, nor make normal cartilage grow over the roughened end of the bones.

2. The second objection to the traumatic theory is the loose and vague employment of the word "trauma," a looseness and vagueness unknown in the discussion of organs other than bones and joints. Just what is this trauma? One does not speak of

a trauma of the appendix or muscle. The appendix may be ruptured, the muscle may be contused, severed or lacerated. Leaving out the results of penetrating wounds, we can conceive of two things only which trauma can do to the joint tissues. It can cause an intra-articular fracture or a sprain.

The presence or absence of a fracture can be demonstrated by the Roentgen rays.

The symptoms of a sprain subside in a few weeks.

There is one important aspect of the great second type of arthritis in its relation to industrial accident work, as well as to other surgical work, that has not received the attention it deserves. I allude to its relation to intra-articular fractures. To it are probably due the stiffness, pain, and restriction of motion following intra-articular fractures in elderly persons, and the only rational explanation we can make for this fact is that the fracture set free into the joint the infectious material previously locked up within the bone.

I wonder that we have been able for so long to plead this connection between the great second type of arthritis and trauma. Some day, I feel sure, the thought will occur to some examining attorney of penetrating acumen to ask the medical expert the simple question, just what is this trauma and how does it act?

California Northern District Medical Society (reported by C. J. Durand, secretary)—At the thirty-fifth semi-annual meeting of the California Northern District Medical Society, held in Sacramento on January 22, C. E. Schoff of Sacramento was elected president and C. J. Durand of Colfax was elected secretary.

The thirty-sixth semi-annual meeting of the society was held in Colfax on April 22, thirty-eight members being present. The morning session, held at the Colfax School for the Tuberculous was in the form of a clinic on artificial pneumothorax in the treatment of pulmonary tuberculosis. Robert A. Peers and his staff did some fluoroscopic work, demonstrated x-ray plates of compressed lungs and made two actual lung compressions. Luncheon was served at the Standard Oil Sanatorium, through the courtesy of Louis P. Howe, chief surgeon of the Standard Oil Company of California. The afternoon session, held at the Colfax Theater, comprised four papers. F. F. Gundrum of Sacramento spoke on "Spirillosis" and gave a clear outline of Vincent's angina, its diagnosis, divers manifestations, complications and treatment. He was followed by F. J. Conzelmann of Stockton State Hospital, whose subject was "Mental Sickness." This paper covered the subject very thoroughly, discussing diagnosis, emphasizing the need of more study in examination of the patient and taking up in detail the different phases of insanity and the psychoses. Another paper on "Psychotherapy in General Medicine" was given by V. H. Podstata of Livermore. This paper was of great interest and contained many practical details for all present. Leo P. Bell of Woodland treated the subject of "Supra-pubic Prostatectomy Under Regional Anaesthesia," illustrated with lantern slides. Each one of these papers proved of general interest to all present and provoked much timely and valuable discussion.

You who dream of the great things to come, why don't you commence? Why do you wait for the campaign, the posters, the meetings, the influential names, the backing? Why must you float on rivers of ink? Why must you start where the toilers left off? Begin!

ERRORS IN DIAGNOSIS OF ABDOMINAL CONDITIONS *

By WALTER WESSELS, M. D., Los Angeles,
(From the Department of Clinical Medicine, College Medical Evangelists.)

Progress is made in all lines, including medicine, by profiting from experience, especially from mistakes. In an active practice it is fitting to occasionally pause and survey our own work, take stock as it were; thereby anticipating future repetitions of the same mistakes. Each of us can recall many blunders, but unless these mistakes help us they are in vain.

In such a survey, recently made, the disclosures have been of so much interest to me that I thought it might be of sufficient import to share a part of this experience with you.

The cases about to be reviewed are from the records of the Los Angeles General Hospital, and from my own files. Needless to say, they represent only a *few* of our mistakes.

The Stomach—Davidson says, "With the possible exception of carcinoma, there are no primary diseases of the stomach." When we think of the stomach as one of the earliest embryonic structures, and that the organ may be removed with impunity, one may indeed pause. While the above statement is too broad, still there is an element of truth in it. If we look up primary chronic gastritis in any textbook on internal medicine, we find many pages devoted to this subject; yet, excluding alcoholic gastritis, toxic gastritis, and achylia gastrica, we have rarely seen any cases of primary chronic gastritis in a practice extending over twenty years, although many cases have been referred with this diagnosis. When a study of the case is made, we usually find either ulcer, carcinoma or secondary gastritis due to anemia, cardiac, hepatic or renal diseases. In our experience, nephritis is the most frequent condition sent in with the diagnosis of chronic gastritis.

Example — A woman of 45 years, after being treated for persistent vomiting of mucus, which occurred several hours after eating, and with diaphragmatic pain (from retching), was sent in with a diagnosis of gastritis. The stomach symptoms had overshadowed everything else, as a urinalysis cleared up the true condition, and a study of the blood chemistry corroborated the diagnosis of nephritis.

Exanthemata — The exanthemata are often mistaken for acute gastritis on account of the vomiting, but as this occurs mostly in children who are under observation in the home until the true nature of the condition is disclosed, I rarely see them.

Not infrequently children have had appendecectomies performed on account of the reflex abdominal symptoms due to pneumonia or pleurisy, but occasionally the exanthemata with enanthem may present baffling symptoms.

In April, 1922, a young man of 18 years was sent to the General Hospital. He had been ailing for a few days. On the day of admission he had a slight temperature, a slight cough, abdominal pain, vomiting; diffuse abdominal tenderness, especially

* Read before the Nevada State Medical Association annual session, Reno, September, 1923.